

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A digital receive-focusing apparatus for use in an ultrasound imaging system comprising:

a plurality of channel modules responsive to ultrasound channel signals, and configured to produce a receive-focused beam, each of said plurality of channel modules including,

i) an analogue multiplexer configured to multiplex ~~means for multiplexing~~ ultrasound signals originating from at least two ultrasound channels; and

ii) means coupled to the analogue multiplexer, for digitally processing and compensating said multiplexed ultrasound signal to produce a receive-focused beam.

Claim 2 (Canceled).

Claim 3 (Previously Presented): The digital receive-focusing apparatus of claim 1, wherein said means for digitally processing includes an analogue-to-digital converter configured to convert said multiplexed ultrasound signal into a digital signal and a compensator configured to compensate said digital signal by filtering and time-delaying said digital signal.

Claim 4 (Original): The digital receive-focusing apparatus of claim 1, wherein said plurality of channel modules are embodied as an Application Specific Integrated Circuit.

Claim 5 (Original): The digital receive-focusing apparatus of claim 1, wherein said plurality of channel modules are arranged in parallel so that said digital receive-focusing apparatus can operate in a multi-channel multi-beam mode.

6. (Previously Presented) A digital receive-focusing apparatus for use in an ultrasound imaging system comprising:

a plurality of channel modules responsive to ultrasound channel signals, and configured to produce a receive-focused beam, each of said plurality of channel modules including,

an analogue multiplexer configured to multiplex ultrasound signals originating from at least two ultrasound channels;

an analogue-to-digital converter configured to convert said multiplexed ultrasound signals into digital signals;

a first delay configured to receive said digital signals and to output the digital signals at a different time based on different amounts of delay pre-calculated based on a switching rate at the analogue multiplexer;

a compensator configured to compensate said digital signal by filtering and time-delaying said digital signal;

a second delay configured to coarsely delay said compensated digital signals;

a multiplier configured to multiply said delayed digital signals by apodization coefficients provided by an apodization generator; and

an adder configured to add said multiplied digital data.